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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,459	01/23/2001	Masami Aizawa	F-6842	2130

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EXAMINER
NGUYEN, TRAN N

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/767,459	AIZAWA ET AL.	
	Examiner	Art Unit	
	Tran N. Nguyen	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 December 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-9, 19-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the two north poles and two south poles, as in claims 4 and 22, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Election/Restriction

3. Newly submitted claims **10-18** are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The original claims 1-3 are drawn to a rotor structure and a stepping motor including the claimed rotor magnet, wherein the claimed language is a written in form of product-by-process apparatus, i.e., the rotor structure was prosecuted on the merit in the first Office Action;

On the other hand, claims 10-18 are directed to a method of making a rotor magnet, i.e., the process of making the rotor instead of the rotor.

These two inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different products or (2) that the

product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to made permanent magnet stator or other permanent magnet element in the dynamoelectric machine instead of a rotor. Also, there are various methods to fabricate an electrical motor's rotor including automatic machinery process and/or manual process, wherein each process having various orders of fabricating steps.

Since the applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **claims 10-18** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Thus, only **claims 1-9, 19-21** are prosecuted in this Office action.

Claim Rejections - 35 USC § 112

4. **Claim 21** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 depends from itself which is indefinite and improper. To further the prosecution of this application, claim 21 is treated as if depending from claim 20.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 4, 5, 7, 19, 22, 23, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward et al (US 5221203) in view of Schultz et al (US5137587).

Ward discloses a rotor (10) comprising a cylindrically shaped body (16) having an outer periphery defining a circumference of the rotor, wherein the rotor body is a mixture of magnet powder in an epoxy resin binder (col 3 lines 59-65) and the rotor magnet having a plurality of north and south poles alternatively positioned along the circumference thereof (fig 1).

Ward substantially discloses the claimed invention, except for the magnetic powder to be SmFeN powder which is in form of particles of a size of not greater than 10 micrometers (microns).

Schultz, however, teaches SmFeN magnetic powder in which the particle is a size of 10 micrometers (microns), wherein the SmFeN powder can be compacted into a preferable shape for a uniform and maximum energy yield. Those skilled in the art also understand that one of permanent magnet material of high residual flux density and great coercive force and a large energy product for higher power generation efficiency is SmFeN material which is well known in the art of dynamoelectric machinery.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Ward's rotor by selecting a SmFeN magnetic powder in which the particle size is 10 micrometers (microns) with resin binder as a material to fabricate the rotor, as taught by Schultz. Doing so would provide a rotor having a uniform-packed preferable shape with high residual flux density and great coercive force to yield a uniform and maximum energy product.

Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. ***In re Leshin, 125 USPQ 416.***

Regarding the following recitations: "mixing a magnetic powder","molding the mixture", "magnetizing", they are method-of-making limitations. The rotor is a product-by-process device, wherein the method of forming the device is not germane to the issue of patentability of the device itself. ***(In re Thorpe, 227 USPQ 964, 966.) (Emphasis added).*** *Therefore, these limitations are not given any patentable weight.*

7. **Claims 1, 2-3, 4, 5, 7, 19, 20-21, 22, 23, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (US5780944) in view of Lee et al (US 5298826) and Schultz et al (US5137587).

Sakamoto discloses a stepping motor comprising a stator (11-12) and a cylindrically shaped permanent magnet rotor having north and south poles alternating positioned along the circumferential of the rotor. Sakamoto substantially discloses the claimed invention, except for the limitations that the rotor is a mixture of SmFeN magnetic powder in a resin binder.

Lee, however, teaches a rotor (1) comprising a cylindrically shaped body having an outer periphery defining a circumference of the rotor, wherein the rotor body is a mixture of magnet

powder in a resin binder (col 3 lines 45-64). Lee teaches that the magnetic powder can be a rare earth magnet material or SmCo or Nd-Fe-B. However, Schultz teaches SmFeN magnetic powder, which has small ~10-micro-meter particles, can be compacted into a preferable shape for a uniform and maximum energy yield. Those skilled in the art also understand that one of permanent magnet material of high residual flux density and great coercive force and a large energy product for higher power generation efficiency is SmFeN material which is well known in the art of dynamoelectric machinery.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Sakamoto's rotor by employing the Ward's in view of Schultz's rotor, i.e., a SmFeN-powder-resin-binder molded rotor. Doing so would provide a rotor having a uniform-packed preferable shape with high residual flux density and great coercive force to yield a uniform and maximum energy product. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. ***In re Leshin, 125 USPQ 416.***

Regarding the following recitations: "mixing a magnetic powder","molding the mixture", "magnetizing", they are method-of-making limitations. The rotor is a product-by-process device, wherein the method of forming the device is not germane to the issue of patentability of the device itself. ***(In re Thorpe, 227 USPQ 964, 966.) (Emphasis added).*** *Therefore, these limitations are not given any patentable weight.*

8. **Claims 6 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Ward** et al and **Schultz** et al (hereafter **combination 1**), or the combination of **Sakamoto**, **Lee** et al and and **Schultz** et al (hereafter **combination 2**), as applied in the rejection against the base claim, and further in view of Tanaka et al (JP 361,210,857).

Combination 1 or the combination 2 discloses the claimed invention, except for the limitation that the resin binder is a polyamide resin.

Tanaka, however, teaches a molded rotor of a magnetic powder in polyamide resin binder.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by selecting polyamide resin for the resin binder material, as taught by Tanaka. Doing so would require only ordinary skills of a worker in the art because a polyamide resin is a well-known bonding material for the magnetic powder. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. ***In re Leshin, 125 USPQ 416.***

9. **Claims 8-9 and 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combination 1 or the combination 2, as applied in the rejection against the base claim, and further in view of Mita et al (US 5684352)

The combination 1 or the combination 2 discloses the claimed invention, except for the limitation of an antioxidation coating is provided on the magnet of the rotor.

Mita, however, teaches a permanent magnet rotor wherein the rotor's magnet elements (1) are provided with an oxidation-preventing coating formed on the surface of the magnet elements (1), and aluminum is among the selected material group of antioxidation material. Those skilled in the art would realize that aluminum phosphate is a well-known antioxidation material because the aluminum phosphate coating on iron powder not only can prevent oxidation of the iron powder but also enhance magnetic properties of the permanent magnet.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by providing the magnet with an antioxidation coating thereon, as taught by Mita. Doing so would prevent the magnet from being rusted. Furthermore, it would have been obvious to one skilled in the art at the time the invention was made to select aluminum phosphate as the antioxidation coating material on the rotor because not only it would prevent oxidation of the iron powder but also enhance magnetic properties of the permanent magnet, and aluminum phosphate is well-known antioxidation material. Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. ***In re Leshin, 125 USPQ 416.***

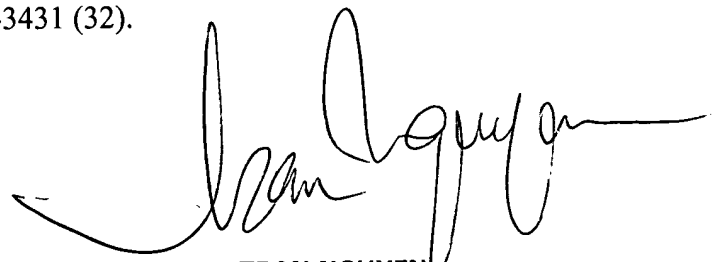
Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran Nguyen whose telephone number is (703) 308-1639.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. The fax phone number for this Group is (703) 305-3431 (32).



TRAN NGUYEN

PRIMARY PATENT EXAMINER

TC-2800